

June 24, 2001

Memo to: Dave Thompson

From: Gary Godfrey (Voice: 650-926-2919)

Re: Test of the GLAST Balloon Flight Pressure Vessel

Dave,

This memo is to document the results of the pressure test done at SLAC on the ACT pressure vessel which is being used for the GLAST Balloon Flight. The test was done by Gary Godfrey (SLAC Staff Physicist) and John Broeder (SLAC Mechanical Technician) with approval for the safety of the procedure used coming from Richard Boyce (SLAC Mechanical Engineer and chairman of the "SLAC Pressure and Vacuum Vessel Safety Committee"). The data for this test is recorded in Gary Godfrey's notebook #13 page 60.

On November 29, 2000 the vessel was filled with nitrogen to 22.5 psig (ie: ~1.5 atm above ambient) during a period of about 30 min. The maximum pressure was recorded with pictures taken of two separate gauges (Figure 1). The vessel was left at this pressure for 12 minutes. The nitrogen bottle was then disconnected, and the pressure was vented to 15 psig. The internal pressure was followed for 4.7 days. This leak rate data is shown in Figure 2.

Figure 1

Pressure Test of the ACT Pressure Vessel (Nov 29, 2000)  
for the GLAST Balloon Flight

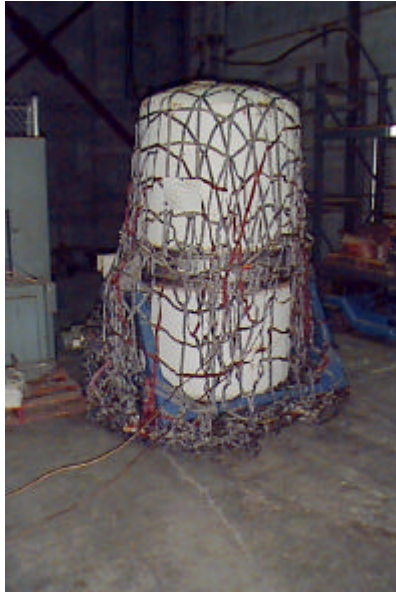


Figure 2

Leak Test Data

$i := 0..6$

[Hours]	[psig]
$t_i :=$	$p_i :=$
0.	15.0
2.1	14.9
17.4	12.0
20.6	11.7
24.7	11.1
41.2	8.9
113.0	8.2

$\tau := 80.$  [hrs] Decay rate of pressure       $p_{calc_i} := 15.0 \cdot e^{\frac{-t_i}{\tau}}$

